

REMARKS

This amendment is offered in response to the final Office Action of July 12, 2006.

The Office Action rejected claims 1, 5, 11, 16, 17, 18, and 25 under 35 U.S.C. §103(a) as being unpatentable over Kimura (U.S. Patent No. 6,386,672) in view of Yamada (U.S. Pub. 2002/0105567). Claim 10 is rejected under 35 U.S.C. §103(a) as being unpatentable over Kimura as modified by Yamada and further in view of Sattler (U.S. Patent No. 6,095,701). Claims 2, 15, and 20 are rejected under 35 U.S.C. §103(a) as being unpatentable over Kimura in view of Yamada and Shiraishi (U.S. Patent No. 5,428,373). The Office Action allowed claims 4, 6-9, 13 and 21-24.

In response, Applicants have cancelled the rejected claims 1-2, 5, 10, 14-19.

Claim 12 has been re-written into independent form in line with cancellation of claim 2. Claim 20 has also been re-written into independent form in line with cancellation of claim 2 and further amended to more specifically clarify the claimed subject matter. Further, claims 24 and 25 have been amended in line with the amendment to claim 20.

Rejection of Claim 11 over Kimura in view of Yamada

The Office Action on page states that Yamada discloses “a cover which is disposed on a side of the flexible wiring board (40) opposite to the head holder, and protects the flexible wiring board; and an elastic member provided between the driver element and the cover, such that the driver element is pressed toward the heatsink/lid plate (54) by a pressing force of the elastic member (Figures 3, 10; Paragraph 0064), for the purpose of allowing the driving element/chip to discharge heat”.

We agree with the Examiner that both Yamada and the present invention that an elastic member functions press a driver element toward a heatsink. However, the present invention

features the cover provided exclusively for protecting the flexible wiring board to cooperate with the elastic member to press the driver element toward the heatsink, in an arrangement where a member exclusively functioning as a heatsink is disposed between a head holder and a flexible wiring board so as to release heat of the driver element on the inner side of the outermost covering member which is the resin cover 24 in Fig. 8 of the present invention and is the lid plate 54 in Yamada et al.

In Yamada, the lid plate 54 also serves as heatsink. The heat conducted from the driver element or chip 55 to the heatsink 54 is dissipated directly to the exterior space of the recording apparatus.

In contrast, the cover of the present invention functions as cover only, and heat generated at the driver element is conducted to the heatsink to be dissipated inside the cover. Thus, the structure or the type of the recording apparatus of Yamada et al. is fundamentally different from that of the present invention.

Therefore, it is respectfully submitted that claim 11 is allowable.

Amendment to claim 20, 24 and 25

Claim 20 is amended into independent form in line with deletion of claim 2. The amendment clarifies the expression only, and the claimed subject matter is by no means changed or affected by the amendment.

The wording or expression of claim 20 in the previously filed Amendment was slightly vague. It was vague in whether the surface of the heatsink, which surface is opposed to the head holder, includes the first and second areas, and is not in contact with the head holder, is on the side opposite to or remote from the flexible wiring board that has the driver element. We believe this vagueness has led to the rejection of claim 20 on page 6 of the Office Action.

The subject matter intended to be defined in claim 20 is essentially that there is a clearance between the heatsink and the head holder at a position corresponding to the driver element and its vicinity on the side opposite to the flexible wiring board comprising the driver element, in order to allow the heat as conducted from the driver element to the heatsink to dissipate into the clearance, thereby efficiently cooling down the driver element while preventing conduction of the heat to the head holder, as described in paragraph 0031, lines 14-20 of the specification of the present application (“a portion of the surface of the heatsink 27 to be opposed to the head holder 18, which portion comprises a first area corresponding to each of the IC chip 35-38 and a second area surrounding and adjacent to the first area, is not in contact with the head holder 18. Accordingly, the heat in the highly heated heatsink 27 is not conducted to the head holder 18 but is released into the space between the head holder 18 and the heatsink 27”).

Hence, the arrangement pointed out by the Examiner disclosed in Fig. 4 of Kimura, where a surface of the heatsink opposed to the head holder is not in contact with the head holder at the position corresponding to the driver element. The contact is on the side of the flexible wiring board comprising the driver element. Therefore, it does not give the same effect as in the present invention. As is Fig. 4 of Kimura, the surface of the heatsink on the side opposite to the flexible wiring board or driver element is held in contact with the head holder, at the position corresponding to the driver element, thereby causing unwanted heat conduction from the heatsink to the head holder.

Thus, to more clearly define this feature, we have amended the wording or expression of claim 20 and the related claims 24 and 25.

The Examiner is respectfully requested to pass this application to early issue.

A request for a month extension of time and fee is enclosed. Applicants do not believe that any additional fees are due. However, if any fees are due, please charge such sums to our Deposit Account: 50-1145.

Respectfully submitted,

A handwritten signature in black ink, appearing to read 'Gerald Levy', is written over the printed name.

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